UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,518	03/09/2004	Richard E. Harper	YOR920040067US1	2517

23413   7590   08/03/2006

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER
KIM, HONG CHONG

ART UNIT	PAPER NUMBER
2185	

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- Th MAILING DATE f this communication appears n th c ver sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _10 July 2006_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Pri rity under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Detailed Action

1.   Claims 1-20 are presented for examination.   This office action is in response to

the amendment filed on 7/10/2006.

Information Disclosure Statement

2.   Applicants are reminded of the duty to disclose information under 37 CFR 1.56.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3.   Claims 1-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Kahn et

al. (Kahn) US Patent Pub. No. 2003/0126354 or Fanning US Patent No. 6,604,186

As to claim 1, 15, 19 Kahn discloses a method for operating a memory controller

(Fig. 1 Ref. 20), the method comprising: receiving a current memory access request

from an agent (Fig. 1 Ref. 22); determining a page management policy associated with

the agent in response to the receiving (block 7 and block 29 lines 5-15) by referring to a

look-up table (block 16, historical record reads on this limitation); setting the memory

controller to the page management policy associated with the agent (block 29);

executing the current memory access request on the memory controller (block 21,

read/write operation); and transmitting results of the executing to the agent (bock 22,

"data is typically accessed on" reads on this limitation).

Alternatively, Fanning discloses a method for operating a memory controller (col.

3 lines 35-40), the method comprising: receiving a current memory access request from

an agent (col. 3 lines 35-40, a request); determining a page management policy

associated with the agent in response to the receiving (Fig. 5) by referring to a look-up

table (Fig. 5 Refs. 102, 514-516); setting the memory controller to the page

management policy associated with the agent (Fig. 5 Ref. 106); executing the current

memory access request on the memory controller (col.3 lines 35-46, page access); and

transmitting results of the executing to the agent (col.3 lines 35-46, page access).

As to claim 2, Kahn discloses the invention as claimed above. Kahn further

discloses the page management policy is a page-open policy (blocks 7 and 29).

As to claim 3, Kahn discloses the invention as claimed above. Kahn further

discloses the page management policy is a page-close policy (blocks 7 and 29).

As to claim 4, Kahn discloses the invention as claimed above. Kahn further

discloses the current memory access request includes an agent type and the

determining is responsive to the agent type (block 29).

As to claim 5, Kahn discloses the invention as claimed above. Kahn further

discloses the agent type is a central processing unit or an input output adapter (Fig. 1

Ref. 10).

As to claim 6, Kahn discloses the invention as claimed above. Kahn further

discloses the current memory access request includes an agent workload type and the

determining is responsive to the agent workload type (block 29)

As to claim 7, Kahn discloses the invention as claimed above. Kahn further

discloses the current memory access request includes a unique identifier for the agent

and the determining is responsive to the unique identifier (block 29).

As to claim 8, Kahn discloses the invention as claimed above. Kahn further

discloses the determining a page management policy includes: calculating a probability

that a future memory access request by the agent will include access to a page

accessed by the current memory access request; and using the probability to determine

the page management policy (block 16).

As to claim 9, Kahn discloses the invention as claimed above. Kahn further

discloses the calculating is based on a history of memory access patterns associated

with the agent (block 16).

As to claim 10, Kahn discloses the invention as claimed above. Kahn further

discloses the probability is calculated based on a number of prior sequential memory

access requests by the agent to a common page divided by a total number of prior

memory access requests by the agent in a specified time interval (block 16).

As to claim 11, Kahn discloses the invention as claimed above. Kahn further

discloses the probability is calculated based on a number of prior sequential memory

access requests by the agent to a common page (block 16).

As to claim 12, Kahn discloses the invention as claimed above. Kahn further

discloses the determining results in a page management policy of page-open if the

probability is greater than or equal to a threshold value and a page management policy

of page-close if the probability is less than the threshold value (block 29 trip point).

As to claim 13, Kahn discloses the invention as claimed above. Kahn further

discloses the determining results in the page management policy being dynamically

adapted based one or more prior memory accesses by the agent (blocks 16 and 29).

As to claim 14, Kahn discloses the invention as claimed above. Kahn further

discloses the setting the memory controller is performed dynamically in response to the

determining (blocks 16 and 29).

As to claim 16, Kahn discloses the invention as claimed above. Kahn further
discloses the memory bank includes one or more memory devices (Fig. 1).

As to claim 17, Kahn discloses the invention as claimed above. Kahn further
discloses the memory devices include one or more of dynamic random access memory,
extended data out dynamic random access memory and synchronous dynamic random
access memory (block 4).

As to claim 18, Kahn discloses the invention as claimed above. Kahn further
discloses the memory bank includes main memory (Fig. 1).

As to claim 20, Kahn discloses the invention as claimed above. Kahn further
discloses the determining a page management policy includes: calculating a probability
that a future memory access request by the agent will include access to a page
accessed by the current memory access request, wherein the calculating is based on a
history of memory access patterns associated with the agent; and using the probability
to determine the page management policy (blocks 16 and 29).

Response to Arguments

4.   Applicant's arguments filed on 7/10/06 have been fully considered but they are
not persuasive.

Applicant's remarks on pages 8-9 that the references not teaching determining a

page management policy associated with the agent in response to the receiving by

referring to a look-up table is not considered persuasive.

Kahn discloses determining a page management policy associated with the

agent in response to the receiving (block 7 and block 29 lines 5-15) by referring to a

look-up table (block 16, historical record reads on this limitation). Alternatively, Fanning

discloses determining a page management policy associated with the agent in response

to the receiving (Fig. 5) by referring to a look-up table (Fig. 5 Refs. 102, 514-516).

Therefore broadly written claims are disclosed by the references cited.

Conclusion

1.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

2.   **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded

of the extension of time policy as set forth in 37 CFR 1.136(a).

3.   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

4.   When responding to the office action, Applicant is advised to clearly point out the

patentable novelty which he or she thinks the claims present in view of the state of the

art disclosed by the references cited or the objections made. He or she must also show

how the amendments avoid such references or objections.   See 37 C.F.R. ' 1.111(c).

5.   When responding to the office action, Applicants are advised to provide the

examiner with the line numbers and page numbers in the application and/or references

cited to assist examiner to locate the appropriate paragraphs.

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hong Kim whose telephone number is (571) 272-4181.

The examiner can normally be reached on M-F 9:00 to 6:00.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

       Any inquiry of a general nature or relating to the status of this application should

be directed to the TC 2100 whose telephone number is (571) 272-2100.

7.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

8.   **Any response to this action should be mailed to:**

> Commissioner of Patents
> P.O. Box 1450
> Alexandria, VA 22313-1450
>
> **or faxed to TC-2100:**
> 571-273-8300
>
> Hand-delivered responses should be brought to the Customer Service
> Window (Randolph Building, 401 Dulany Street, Alexandria, VA 22314).

HK
Primary Patent Examiner
July 31, 2006